

REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

1a. REPORT SECURITY CLASSIFICATION			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION			3. DISTRIBUTION/AVAILABILITY OF REPORT		
2b. C			Approved for public release; distribution unlimited.		
4. PE			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
AD-A214 806			AFOSR-TR. 80-1442		
6a. NAME OF PERFORMING ORGANIZATION		6b. OFFICE SYMBOL (if applicable)		7a. NAME OF MONITORING ORGANIZATION	
Florida State University Department of Statistics				AFOSR	
6c. ADDRESS (City, State, and ZIP Code)				7b. ADDRESS (City, State, and ZIP Code)	
Tallahassee, Florida 32306				BLDG 410 BAFB DC 20332-6448	
8a. NAME OF FUNDING / SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (if applicable)		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
AFOSR				AFOSR 78-3678	
8c. ADDRESS (City, State, and ZIP Code)		10. SOURCE OF FUNDING NUMBERS			
BLDG 410 BAFB DC 20332-6448		PROGRAM ELEMENT NO. PROJECT NO. TASK NO. WORK UNIT 61102F 2304 A5 ACCESSION NO			
11. TITLE (Include Security Classification)					
STATISTICAL ASPECTS OF RELIABILITY, MAINTAIN ABILITY, AND AVAILABILITY					
12. PERSONAL AUTHOR(S)					
Myles Hollander and Frank Proschan					
13a. TYPE OF REPORT		13b. TIME COVERED		14. DATE OF REPORT (Year, Month, Day)	
Final		FROM TO		October 1980	
15. PAGE COUNT					
3					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES					
18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)					
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT					
21. ABSTRACT SECURITY CLASSIFICATION					
unclassified					
22a. NAME OF RESPONSIBLE INDIVIDUAL					
22b. TELEPHONE (Include Area Code)					
22c. OFFICE SYMBOL					
767-5025 NM					

Final Scientific Report to Air Force
Office of Scientific Research

Grant AFOSR- 78-3678

September 1978--September 1980

Statistical Aspects of Reliability, Maintainability
and Availability.

Reliability Center
Department of Statistics
The Florida State University
Tallahassee, Florida 32306

Myles Hollander and Frank Proschan
Co-Principal Investigators

October, 1980

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	



Under Grant AFOSR-78-3678, a total of 29 research reports were issued, 21 papers were published in scientific journals, 18 additional papers are in press or accepted for publication, and 3 books are in preparation.

> The main thrust of the research performed under the grant is the development of methods and concepts in reliability, availability, and maintainability, presently applicable and potentially applicable to the programs of the U.S. Air Force in particular and the Department of Defense in general. In addition, because of the general nature of the mathematical and statistical research performed, the results obtained are of value in a variety of other applied areas, and in mathematical and statistical theory.

A partial list of topics treated may give some idea of the scope of the research performed under the Grant:

1. Accelerated life testing,
2. Reliability growth models,
3. Imperfect repair.
4. Inference for the exponential life distribution.
5. Analysis of mean remaining life.
6. Testing whether more failures occur later.
7. Testing for "new better than used".
8. Crack size and fatigue life of gun barrels,
9. Coherent structure theory.
10. Extension of coherent structure theory to the multistate case.
11. Competing risk theory.
12. Functions decreasing in transposition, and their application in models for shock, damage, and down time.

13. Analysis of censored data.
14. Classes of life distributions - characterizations and extreme points.
15. Time series prediction.
16. Epidemic processes.
17. Types of qualitative dependence among random variables.

Additional topics were treated but are not listed.

The Reliability Center carried on consultation with members of the Eglin Air Force Base, the Los Alamos Laboratory, and the Air Force Office of Scientific Research.

Finally, a number of distinguished reliability theorists visited the Reliability Center for various lengths of time. These included Richard E. Barlow, Nozer Singpurwalla, Kumar Jogdeo, Emad El-Newehi, and John Conlon.